



Canadian Centre for
Occupational Health
and Safety

Centre canadien
d'hygiène et de
sécurité au travail

ACNE

**A Summary of the
Occupational Health
Concern**

89-02863/

ACNE
A Summary of the Occupational Health Concern

Renzo Bertolini
Canadian Centre for Occupational Health and Safety

January 1989

ACNE--A SUMMARY OF THE OCCUPATIONAL HEALTH CONCERN

Each publication produced by CCOHS undergoes several stages of review. As part of this review, representatives from government, employers, and labour are requested to comment on draft copies of CCOHS publications for technical accuracy and readability.

Although every effort is made to ensure accuracy and completeness of the information, it is understood that CCOHS makes no warranty as to the accuracy or completeness of such information and assumes no liability for any damages or loss suffered as a result of any inaccuracy or incompleteness therein.

This publication is available in both official languages.

Cette publication est disponible dans les deux langues officielles.

CCOHS NUMBER P89-1E

ISBN 0-660-13104-8

DSS CATALOGUE NUMBER CC273-2/89-1E

Published 1989

250 Main Street East
Hamilton Ontario
L8N 1H6
416-572-2981
FAX 416-572-2206
Telex 061-8532



CCOHS/CCHST

TABLE OF CONTENTS

1. INTRODUCTION	1
2. OIL ACNE	1
3. COAL-TAR ACNE	2
4. CHLORACNE	3
5. PREVENTION	3
FURTHER READING	4

1. INTRODUCTION

Occupational acne is an inflammation of the glands that produce oil to lubricate the skin. The inflammation occurs when certain chemicals block the pores of the skin causing accumulation of the oil and formation of a skin protein called keratin. The accumulation of the oily substance and the formation of keratin produce black plugs that mark occupational acne.

Each of three different groups of chemicals causes a different type of acne.

- Group 1 - petroleum and its derivatives, especially all compounds found in crude oils, cause oil acne.
- Group 2 - certain coal-tar products cause coal-tar acne.
- Group 3 - halogenated aromatic compounds, like polychlorinated biphenyls, cause chloracne.

2. OIL ACNE

Grease and petroleum-based cutting oils cause oil acne. Blisters and small spots in areas where oil exposure is heavy, such as the arms and hands, mark oil acne. But other areas such as the abdomen and thighs may be affected, especially if they are covered with oil-soaked clothes. The obstructed pores of the skin develop plugs formed by the oil and keratin, which the presence of air turns black.

Victims of oil acne should see a physician. In the absence of treatment, the condition may persist for months after the exposure to oil stops. Skin lesions caused by repeated exposure to petroleum products, if not treated properly, may develop over a long period of time into skin cancer.

The features associated with oil acne include darkening of the skin and an abnormal reaction of the skin to sunlight. Darkening of the skin is caused by excessive production of the pigment melanin. It occurs mainly on sites that are heavily exposed to cutting oils and are simultaneously exposed to sunlight. It occurs because of exposure to a chemical alone and also depends on the presence of sunlight, which can make some chemicals more toxic.



Table - Causes of occupational acne in various occupations

Agent	Type of Acne	Occupational Group
Petroleum and its derivatives Crude oil and fractions Cutting oils	Oil acne	Machine-tool operators, mechanics, workers exposed to petroleum and its derivatives
Coal-tar products Coal tar oils Pitch Creosote	Coal-tar acne	Coal-tar plant workers, construction workers, roofers, road paving workers, paper tube impregnation workers, conduit manufacturers, wood and cable preservation workers
Halogenated aromatic compounds Chloronaphthalenes Polychlorinated biphenyls (PCBs) Polychlorinated dibenzofurans (PCDFs) Polychlorinated dibenzo-p-dioxins (PCDDs) for example 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) 3,4,3',4' Tetrachloroazoxybenzene (TCAOB) 3,4,3',4' Tetrachloroazobenzene (TCAB)	Chloracne	Chemical manufacturing workers, laboratory workers, maintenance workers, waste handling workers, workers in different industries using certain halogenated hydrocarbons

3. COAL-TAR ACNE

Coal-tar products cause coal-tar acne. The oily substance and keratin forms the black plugs that mark coal-tar acne. These plugs are typically found around the eyes. In general, coal-tar acne clears rapidly, but in some cases it may persist long after the exposure stops. Victims of coal-tar acne may experience skin darkening. They also may report burning sensations and flushing of the skin after exposure to light. As with oil, the skin lesions caused by exposure to coal-tar products, if not treated properly, may develop into skin cancer.

4. CHLORACNE

Exposure to various halogenated aromatic compounds causes chloracne. The oily substance and keratin form the yellow cysts and gray plugs that mark chloracne. The skin lesions occur mainly in the face, but in more severe cases they involve the shoulders and chest, the back, and the abdomen. In the most serious cases, the lesions appear also on the arms, thighs, legs, hands and feet. Direct skin contact is the most common way of developing chloracne, but ingestion and inhalation are also responsible. Chloracne can develop from three to four weeks after exposure and it may last up to fifteen years, even if exposure stops.

The complications associated with chloracne include liver disease, bronchitis, nausea, vomiting, and diarrhea. There is also a poisonous effect on the nervous system, resulting in symptoms such as headache, fatigue, irritability, sweating of the palms, and numbness in the legs.

5. PREVENTION

Occupational acne can be avoided by simple measures such as personal hygiene, engineering controls and personal protection. Personal hygiene, including hand washing, is very important to prevent occupational acne. Workplaces should provide change rooms, showers and bath facilities, and workers should wear clean coveralls daily.

Engineering controls are important to reduce exposures. Enclosing processes separates workers from the harmful substances with which they work. Using adequate local exhaust systems avoids direct skin contact and inhalation. Using well-designed spray apparatus reduces splashes of harmful substances. Where possible, workplaces should substitute non-hazardous substances for hazardous substances.

Personal protection includes splash goggles and gloves. Make sure that they are properly selected because not all protective clothing provides protection against all substances.

Canadian legislation now requires that all workers be informed about the nature of substances they are exposed to, and the hazards of the work processes.

Workers should review the MSDSs which provide information on safety as well as health. Workers should also ensure that substances used at work are properly labelled and that they know how to work safely with the products. Workers can get information on the hazards of the ingredients of workplace products from CCOHS.



FURTHER READING

- Adams, R.M. Occupational skin disease. New York: Grune & Stratton, 1983. p. 70-81.
- Ancona, A.A. Occupational acne. Occupational Medicine: State of the Art Reviews. Vol. 1, no. 2 (1986) p. 229-243.
- Dermatotoxicology. Edited by F.N. Marzulli et al. Second Edition. Washington: Hemisphere Publishing Corporation, 1983. p. 461-481.
- Kaidbey, K.H. et al. A human model of coal tar acne. Archives of Dermatology. Vol. 109 (Feb. 1974) p. 212-215.
- Suskind, R.R. Chloracne, "the hallmark of dioxin intoxication." Scandinavian Journal of Work, Environment and Health. Vol. 11, no. 3 (1985) p. 165-171.
- Occupational and industrial dermatology. Edited by H.I. Maibach et al. Second Edition. Chicago, Ill.: Year Book Medical Publishers, Inc., 1987. p. 105-120.
- Taylor, J.S. Environmental chloracne: update and overview. Annals of the New York Academy of Sciences. Vol. 320 (1979) p. 295-307.
- Tindall, J.P. et al. Chloracne and chloracnegens. Journal of the American Academy of Dermatology. Vol. 13, no. 4 (1985) p. 539-560.

